### (12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

## (19) World Intellectual Property Organization

International Bureau



## 

#### (43) International Publication Date 14 April 2005 (14.04.2005)

### **PCT**

# (10) International Publication Number WO 2005/034163 A2

(51) International Patent Classification<sup>7</sup>:

H01J

(21) International Application Number:

PCT/GB2004/004158

(22) International Filing Date:

30 September 2004 (30.09.2004)

(25) Filing Language:

English

(26) Publication Language:

English

(30) Priority Data:

0323001.8

1 October 2003 (01.10.2003) GE

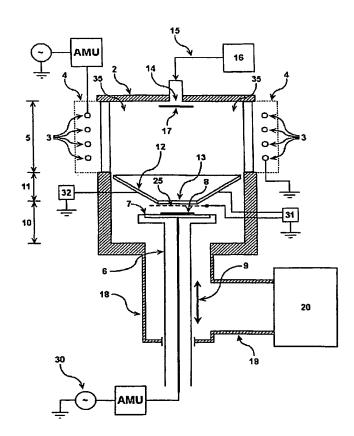
- (71) Applicant (for all designated States except US): OX-FORD INSTRUMENTS PLASMA TECHNOLOGY LIMITED [GB/GB]; Old Station Way, Eynsham, Oxford OX8 1TL (GB).
- (72) Inventors; and
- (75) Inventors/Applicants (for US only): COOKE, Michael,

Joseph [GB/GB]; 4 Dean Avenue, Thornbury, Bristol BS35 1JJ (GB). HASSALL, Geoffrey [GB/GB]; Lyndale, Shillingford St. George, Exeter EX2 9QL (GB).

- (74) Agent: GILL JENNINGS & EVERY; Broadgate House, 7 Eldon Street, London EC2M 7LH (GB).
- (81) Designated States (unless otherwise indicated, for every kind of national protection available): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.
- (84) Designated States (unless otherwise indicated, for every kind of regional protection available): ARIPO (BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM,

[Continued on next page]

(54) Title: APPARATUS AND METHOD FOR PLASMA TREATING A SUBSTRATE



(57) Abstract: Apparatus is provided for plasma treating a substrate. This has a chamber (2) and a plasma generator (4) which forms a plasma from one or more gases flowing within the chamber so as to produce one or more species for interacting with a substrate (8) placed within the chamber. A guide (12) is provided for directing the gas flow containing the species towards the substrate (8). When in use, the width of the plasma is greater than that of the substrate by an amount defining an outer region of plasma. The guide is adapted to direct the species from at least substantially all of the outer region of the plasma towards the substrate. A corresponding method of plasma treatment is also disclosed.

## WO 2005/034163 A2



ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

#### Published:

 without international search report and to be republished upon receipt of that report